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# **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS**

**Sixth  
Edition**

**McGraw-Hill**

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On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; U.S. Air Force Glossary of Standardized Terms, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

**McGraw-Hill Dictionary of Scientific and Technical Terms,  
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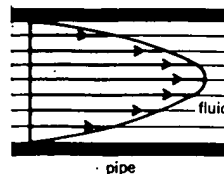
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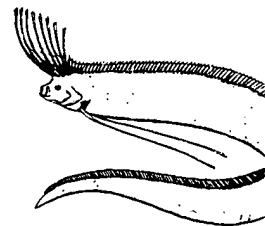
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## LAMINAR FLOW



Laminar flow in a circular pipe. In this case the velocity adjacent to the wall is zero and increases to a maximum in the center of the pipe.

## LAMPRIDIFORMES



Oarfish (*Regalecus glesne*); 1 to over 20 feet (6 meters).

## boundary layer

## laminar composite

wavelength of the ...  
silk, rayon, or poly ...  
[ 'la'mā ] ...  
stants which relate ...  
[ 'la'mā ] ...  
ons that arise ...  
ellipsoidal coord ...  
late. [CV ENG] ...  
te, metal; or wood ...  
verlapping pattern to ...  
consisting basically ...  
made up of relatively ...  
bolted, riveted, or ...  
mel-ə, 'ārč ] ...  
ie with a microscopic ...  
tes. [ 'la'mel-ə ] ...  
A type of chloroplast ...  
is more or less uniform ...  
body. [ 'la'mel-ə ] ...  
polycrystalline substance ...  
thin sheets. [ 'la'mel-ə ] ...  
van vault built of ...  
[ 'la'mel-ə, ruf ] ...  
nal vector field. [ 'la'mel-ə ] ...  
An equivalent name ...  
family of marine ...  
mel-ə-sə-bel-ə, 'de ] ...  
ynomials which result ...  
ons assume integral values ...  
sical solutions of Laplace's ...  
tes. [ 'la'mā, pāl-ə ] ...  
eneral collection of ...  
have five regular singular ...  
independent relations, which ...  
tric tensor of a three-dimensional ...  
sufficient conditions for the ...  
ri, 'lā-shanz ] ...  
Functions which arise when ...  
llopsoidal coordinates. Also ...  
tions. [ 'la'mā 'wāv, fōk ] ...  
nt name for Labiatae. ...  
dicotyledonous plants, in the ...  
characteristic gynoecium, ...  
carpels, with each ...  
a false partition, or with the ...  
ugly wholly separate. [ 'la'mā ] ...  
AT] A thin sheet or layer of ...  
OL] A thin, clearly different ...  
A flat or curved arrangement ...  
in a matrix. [ 'la'mā ] ...  
e portion of the sclera which ...  
e optic nerve. 2. The ...  
the thigh. 3. The ...  
the brain. 4. The ...  
mass branches of the cochlea ...  
ve. [ 'la'mā-nə krə-brə ] ...  
Condition in which the ...  
carpels. [ 'la'mā-nə ] ...  
ged in thin layers. 2. ...  
without turbulence. [ 'la'mā ] ...  
MECH] A thin layer over ...  
n a fluid, in which the ...  
increases rapidly with distance

from the surface and the flow is laminar. [ 'la'mā-nə 'baun-  
de-lā-ər ]  
laminar composite [MATER] A composite material that con-  
sists of two or more layers of different materials that are bonded  
together. [ 'la'mā-nə kəm-pāz-ət ]  
laminar flow [FL MECH] Streamline flow of an incompress-  
ible, viscous Newtonian fluid; all particles of the fluid move  
in distinct and separate lines. [ 'la'mā-nə 'flō ]  
laminar flow control [AERO ENG] The removal of a small  
amount of boundary-layer air from the surface of an aircraft  
wing with the result that the airflow is laminar rather than  
turbulent; frictional drag is greatly reduced. [ 'la'mā-nə  
'flō kən-trōl ]  
Laminariales [BOT] An order of brown, large, structurally  
complicated, often highly differentiated members, commonly  
called kelps, of the algal class Phaeophyceae; distinctive fea-  
tures include a life history in which microscopic, filamentous,  
dioecious gametophytes alternate with a massive, parenchy-  
matous sporophyte, and a mature sporophyte typically con-  
sisting of a holdfast, stipe, and one or more blades. [ 'la'mā-  
nə-ri-ə-lēz ]  
Laminariophyceae [BOT] A class of algae belonging to the  
division Phaeophyta. [ 'la'mā-nə-ri-ə-ō-fis-ē, ē ]  
laminar sublayer [FL MECH] The laminar boundary layer  
underlying a turbulent boundary layer. [ 'la'mā-nə 'səb, lā-  
r ]  
laminar wing [AERO ENG] A low-drag wing in which the  
distribution of thickness along the chord is so selected as to  
maintain laminar flow over as much of the wing surface as  
possible. [ 'la'mā-nə 'wīg ]  
laminar [MATER] A sheet of material made of several dif-  
ferent bonded layers. [ 'la'mā-nā ]  
laminated composite [MATER] A composite material con-  
sisting of layers of various materials. [ 'la'mā-nād-əd  
kəm-pāz-ət ]  
laminated contact [ELEC] Switch contact made up of a  
number of laminations, each making individual contact with  
the opposite conducting surface. [ 'la'mā-nād-əd kən-takt ]  
laminated core [ELECTROMAG] An iron core for a coil trans-  
former, armature, or other electromagnetic device, built up from  
laminations stamped from sheet iron or steel and more or less  
insulated from each other by surface oxides and sometimes  
also by application of varnish. [ 'la'mā-nād-əd 'kōr ]  
laminated glass See nonshattering glass. [ 'la'mā-nād-əd  
'glas ]  
laminated metal [MET] A sheet or bar of composite metal  
composed of two or more bonded layers. [ 'la'mā-nād-əd  
'med-əl ]  
laminated plastic [MATER] A thin sheet made of superposed  
layers of plastic bonded or impregnated with resin or com-  
pressed under heat. [ 'la'mā-nād-əd 'plas-tik ]  
laminated spring [DES ENG] A flat or curved spring made  
of thin superimposed plates and forming a cantilever or beam  
of uniform strength. [ 'la'mā-nād-əd 'sprīg ]  
laminated wood [MATER] Board or timber composed of lay-  
ers of wood glued together with the grains parallel. [ 'la'mā-  
nād-əd 'wūd ]  
lamina terminalis [ANAT] The layer of gray matter in the  
brain connecting the optic chiasma and the anterior commissure  
where the latter becomes continuous with the rostral lamina.  
[ 'la'mā-nā, 'tər-mə-nāl-is ]  
lamination [GRAPHICS] A plastic protective film on a printed  
sheet that has been bonded by heat and pressure. [MATER]  
One of the thin punchings of iron or steel used in building up  
a laminated core for a magnetic circuit. [MED] An operation  
in embryotomy in which the skull is cut in slices. [SCI TECH]  
Arrangement in layers. [ 'la'mā-nā-shən ]  
laminectomy [MED] Surgical removal of the lateral portion  
of the neural arch from one or more vertebrae. [ 'la'mā-nēk-  
tō-mē ]  
laminite [GEOL] Any sedimentary rock composed of milli-  
meter- or finer-scale layers. [ 'la'mā-nīt ]  
laminography See sectional radiography. [ 'la'mā-nāg-rā-  
fē ]  
Lami's theorem [MECH] When three forces act on a particle  
in equilibrium, the magnitude of each is proportional to the  
sine of the angle between the other two. [ 'la'mēz, 'thir-əm ]  
lamp [ENG] A device that produces light, such as an electric  
lamp. [ 'lamp ]

lampadite [MINERAL] A mineral composed chiefly of  
hydrous manganese oxide with as much as 18% copper oxide  
and often cobalt oxide. [ 'lam-pə,dīt ]

lamp bank [ELEC] A number of incandescent lamps con-  
nected in parallel or series to serve as a resistance load for full-  
load tests of electric equipment. [ 'lamp, bāŋk ]

lampblack [MATER] A grayish-black amorphous, practically  
pure form of carbon made by burning oil, coal tar, resin, or  
other carbonaceous substance in an insufficient supply of air;  
used in making paints, lead pencils, metal polishes, electric  
brush carbons, crayons, and carbon papers. [ 'lamp, blak ]

lampbrush chromosome [CELL MOL] An exceptionally  
large, chromosome characterized by fine lateral projections  
which are associated with active ribonucleic acid and protein  
synthesis. [ 'lamp, brəʃh 'krō-mə,sōm ]

lamp cabin See lamp room. [ 'lamp, kəb-ən ]

lamp-charging rack [MIN ENG] Mine-lamp-charging racks  
which allow miners to store lamp units for recharging after  
daily use. [ 'lamp, čhā-ŋŋ, 'rak ]

lamp cord [ELEC] Two twisted or parallel insulated wires,  
usually no. 18 or no. 20, used chiefly for connecting electric  
equipment to wall outlets. [ 'lamp, kōrd ]

lamp depreciation [ELEC] The decrease in amount of light  
emitted by a lamp during its operating life. [ 'lamp di,prē-  
shē, ā-shən ]

lampholder [ELEC] A device designed to connect an electric  
lamp to a circuit and to support it mechanically. [ 'lamp,-  
hōld-ər ]

lamphouse [ENG] 1. The light housing in a motion picture  
projector, located behind the projector head ordinarily con-  
sisting of a carbon arc lamp operating on direct current at about  
60 volts, a concave reflector behind the arc which collects the  
light and concentrates it on the film, and cooling devices. 2.  
A box with a small hole containing an electric lamp and a  
concave mirror behind it, used as a concentrated source of light  
in a microscope, photographic enlarger, or other instrument.  
[ 'lamp, haūs ]

lampling [MIN ENG] Use of a portable ultraviolet lamp to  
reveal fluorescent minerals in prospecting. [ 'lam-piŋ ]

lamp inrush current [ELEC] The surge of current that occurs  
when an incandescent lamp is turned on. [ 'lamp 'in,rəʃh  
'kər-ənt ]

lampman [MIN ENG] A person responsible for maintaining  
and servicing miners' lamps. [ 'lamp, mən ]

lamp oil See kerosene. [ 'lamp, 'ōil ]

lamprey [VERT ZOO] The common name for all members of  
the order Petromyzonida. [ 'lam-prē ]

Lampridiformes [VERT ZOO] An order of teleost fishes char-  
acterized by a compressed, often ribbonlike body, fins com-  
posed of soft rays, a ductless swim bladder, and protractile  
maxillae among other distinguishing features. [ 'lam-prid-  
ə'fōr,mēz ]

lamprobolite See basaltic hornblende. [ 'lam-prə'bō,līt ]

Lamprocystis [MICROBIO] A genus of bacteria in the family  
Chromatiaceae; cells are spherical and motile, have gas vacu-  
oles, and contain bacteriochlorophyll *a* on vesicular photosyn-  
thetic membranes. [ 'lam-prə'sis-tīs ]

lamp room [MIN ENG] A room or building at the surface of  
a mine for charging, servicing, and issuing all cap, hand, and  
flame safety lamps. Also known as lamp cabin; lamp station.  
[ 'lamp, rūm ]

Lampropedia [MICROBIO] A genus of gram-negative, obli-  
gately anaerobic cocci of uncertain affiliation; cells form pairs,  
tetrads, or flat squared tablets. [ 'lam-prə'pēd-ē-ə ]

lamprophyllite [MINERAL]  $\text{Na}_2\text{SrTiSi}_2\text{O}_8$  A mineral com-  
posed of titanium strontium sodium silicate. [ 'lam-prə'fi,līt ]

lamprophyre [PETR] Any of a group of igneous rocks char-  
acterized by a porphyritic texture in which abundant, large  
crystals of dark-colored minerals appear set in a not visibly  
crystalline matrix. [ 'lam-prə'fi-ər ]

lampshade paper [MATER] Paper that is translucent and  
either flame-resistant or flame-retardant; often made of wood  
pulp, vegetable parchment, or laminated glassine. [ 'lamp,-  
shād, 'pā-pər ]

lamp station See lamp room. [ 'lamp, stā-shən ]

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**VOLUME 8**

**Identification  
to  
Lignin**

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**L**

**LABORATORY POLYMERIZATION PROCEDURES.** See  
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**LACTONES.** See POLYESTERS.

**LADDER AND SPIRO POLYMERS.** See SPIRO AND LADDER POLYMERS.

## **LAMINATES**

Laminates consist of layers or laminae bonded together by suitable binders. The laminae are usually materials, such as paper or woven fabrics, which are readily available in continuous-sheet form. The binders are synthetic resins, predominantly phenolic resins, which are solvent-coated or impregnated into the base laminae. After drying, several laminae are stacked and the entire mass is consolidated under heat and pressure to form a rigid sheet or panel utilized for its mechanical, electrical, chemical, or aesthetic qualities.

Some writers have suggested that laminating had its origins in antiquity, pointing to the bonding of papyrus with natural gums and resins by the Egyptians. Modern practices, however, can easily be traced to the advent of synthetic phenol-formaldehyde resins as developed by Baekeland in 1907. Phenolic resins are inherently brittle and are usually processed by adding reinforcing fillers, followed by molding under heat and pressure. Layers of reinforcement, such as cotton fabric, strengthened the resin, which could then be made available in large sheets suitable for fabrication into many useful articles. Thus, the primary rea-